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Harris

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[54] **ARTICLE CARRIER WITH BOTTOM PANEL FALSE SCORE**

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[73] Assignee: **Riverwood International Corporation**, Atlanta, Ga.

[21] Appl. No.: **605,387**

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[51] **Int. Cl.**[6] **B65D 65/00**

[52] **U.S. Cl.** **206/429**; 206/434

[58] **Field of Search** 206/429, 427, 206/434

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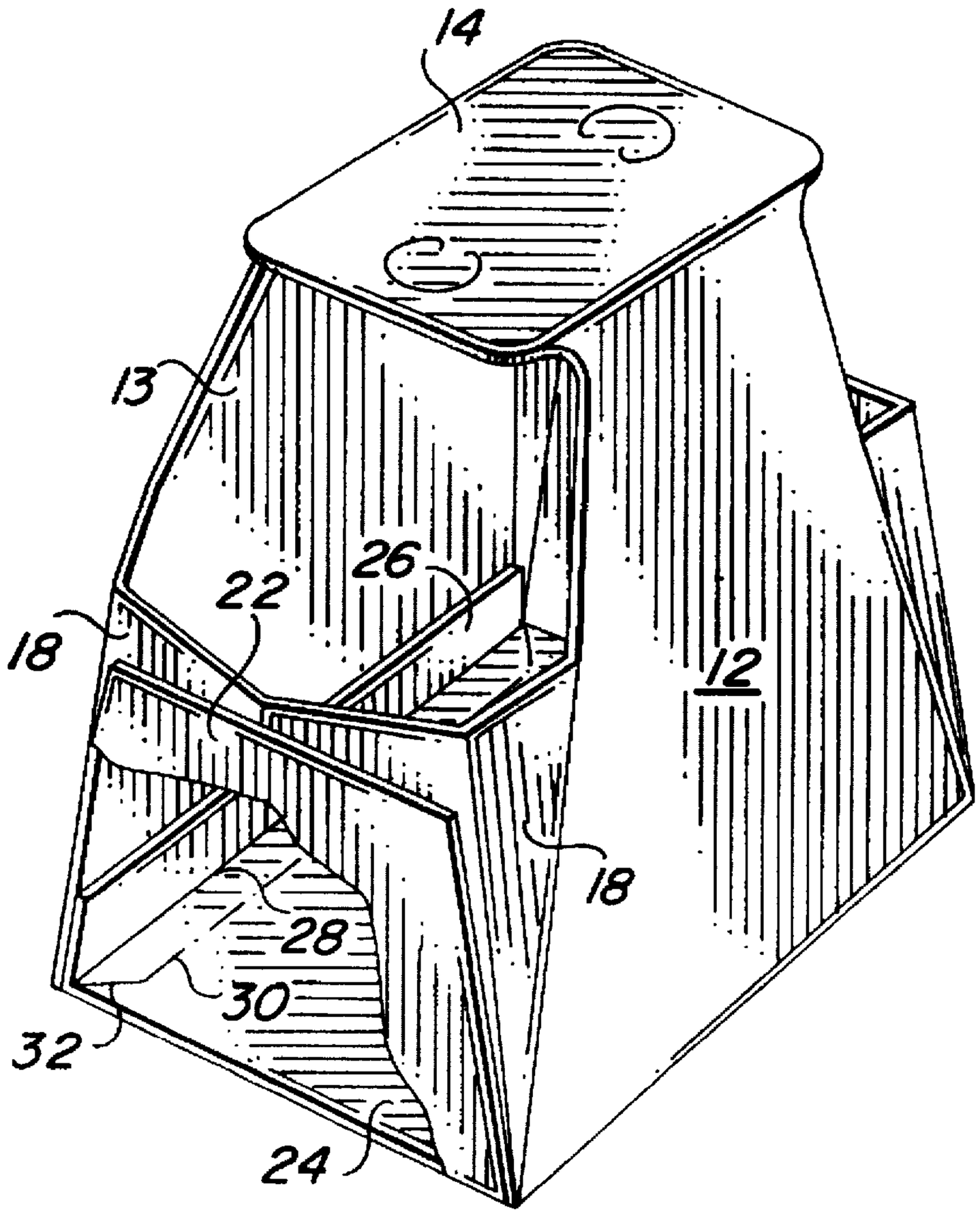
Primary Examiner—Paul T. Sewell

Assistant Examiner—Nhan T. Lam

[57] **ABSTRACT**

An article carrier which tapers in toward the top panel on all four sides. The carrier in collapsed form is folded about an intermediate fold line in the bottom panel located so that the collapsed carrier is in flat folded condition. The provision of the intermediate fold line compensates for the greater width of the bottom panel compared to the width of the top panel. The sides of the carrier are squared by contact with the lower portions of bottles being through an open end of the carrier.

12 Claims, 4 Drawing Sheets



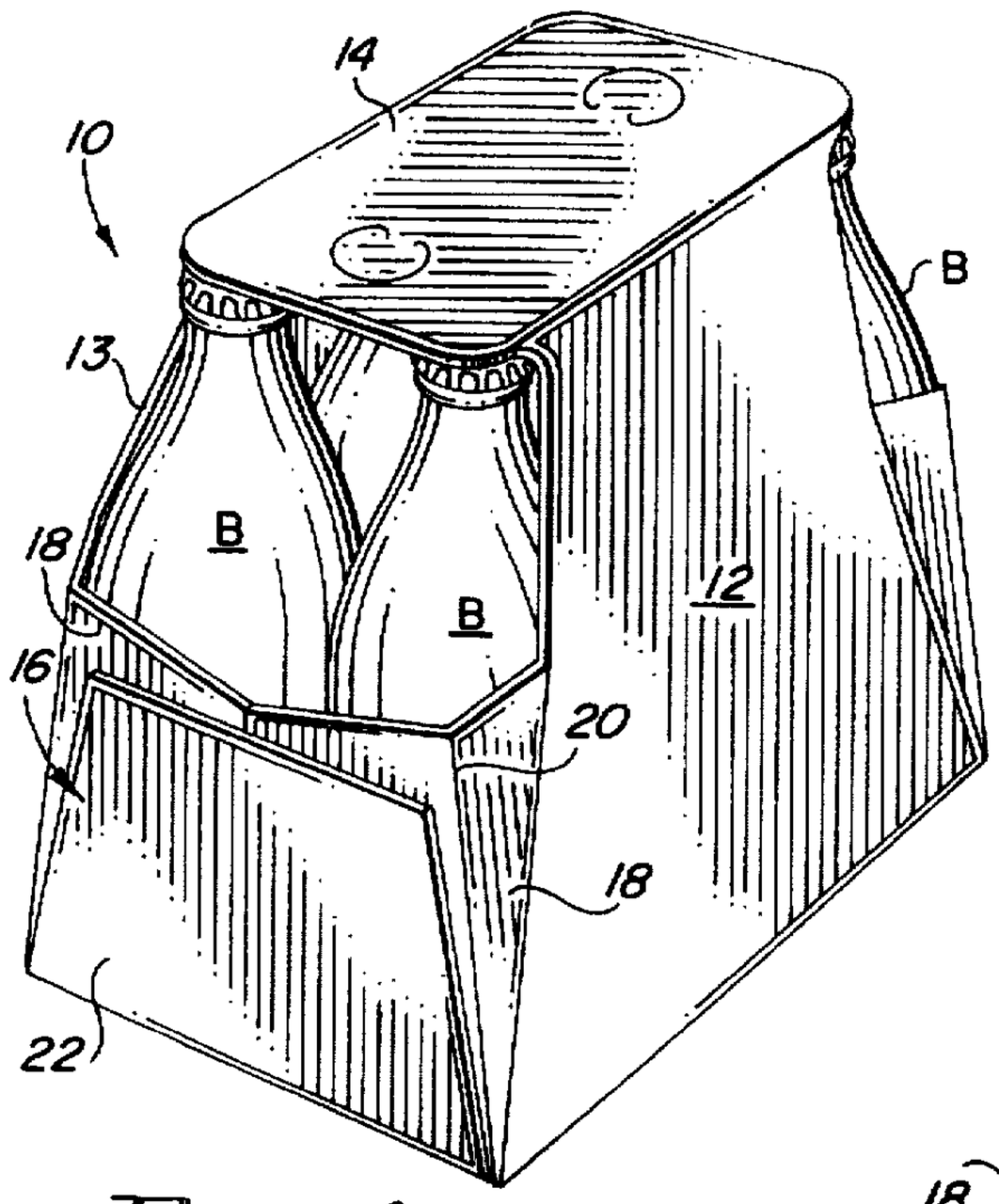


FIG-1

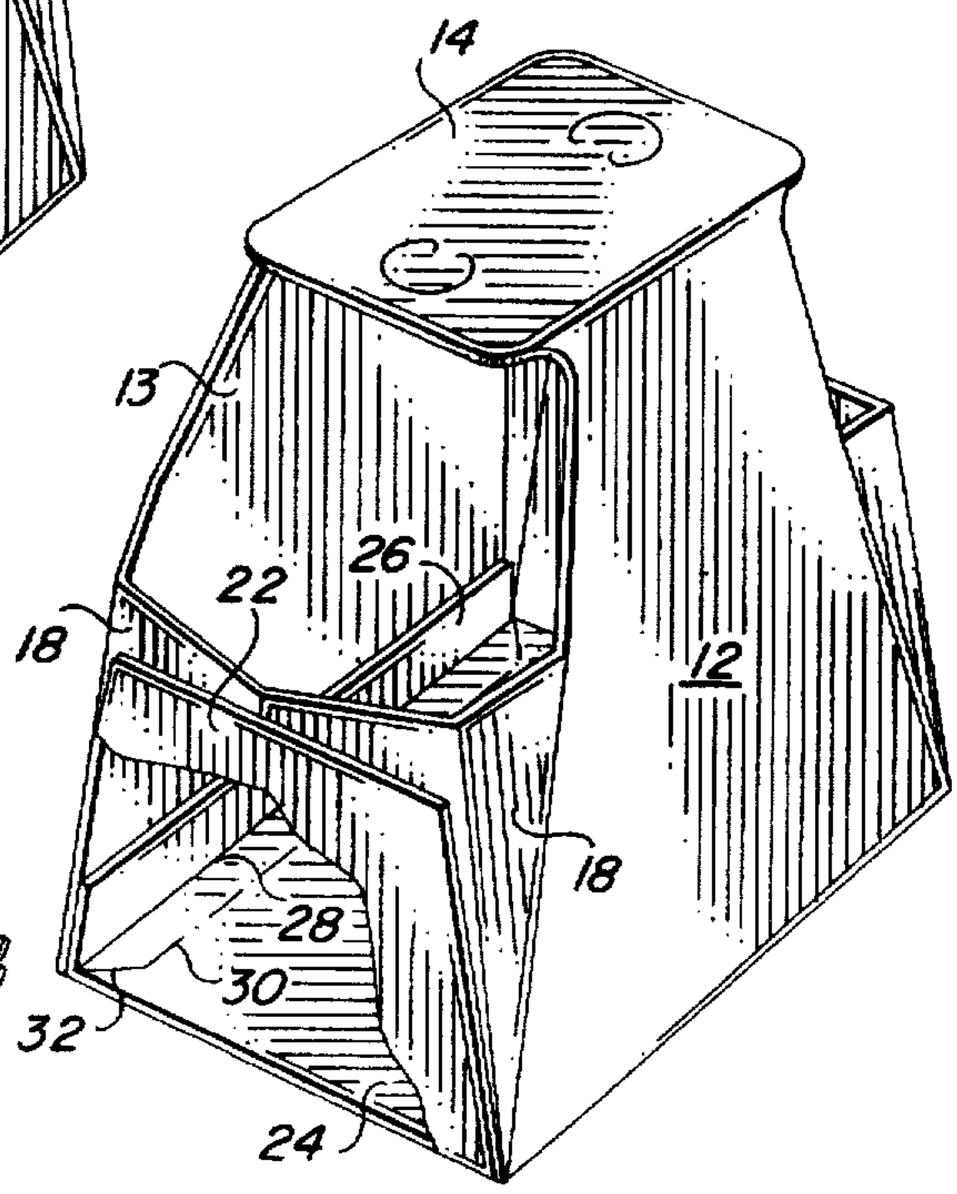


FIG-3

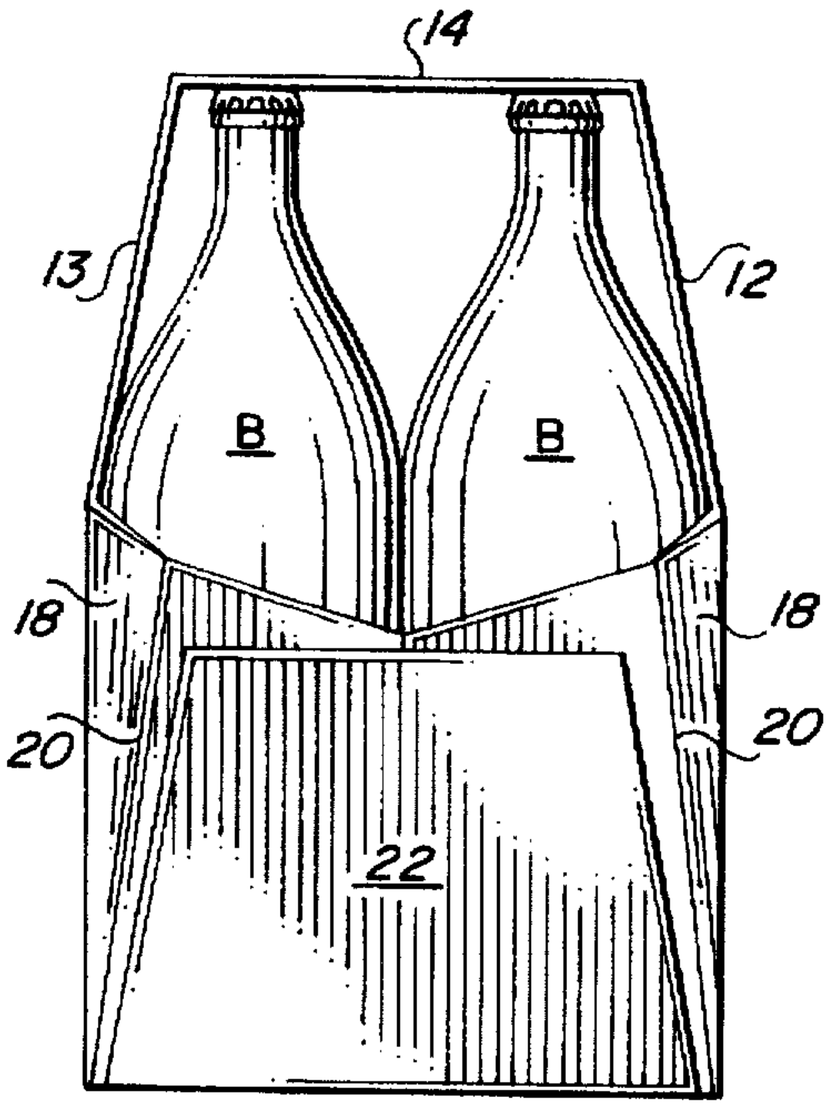


FIG-2

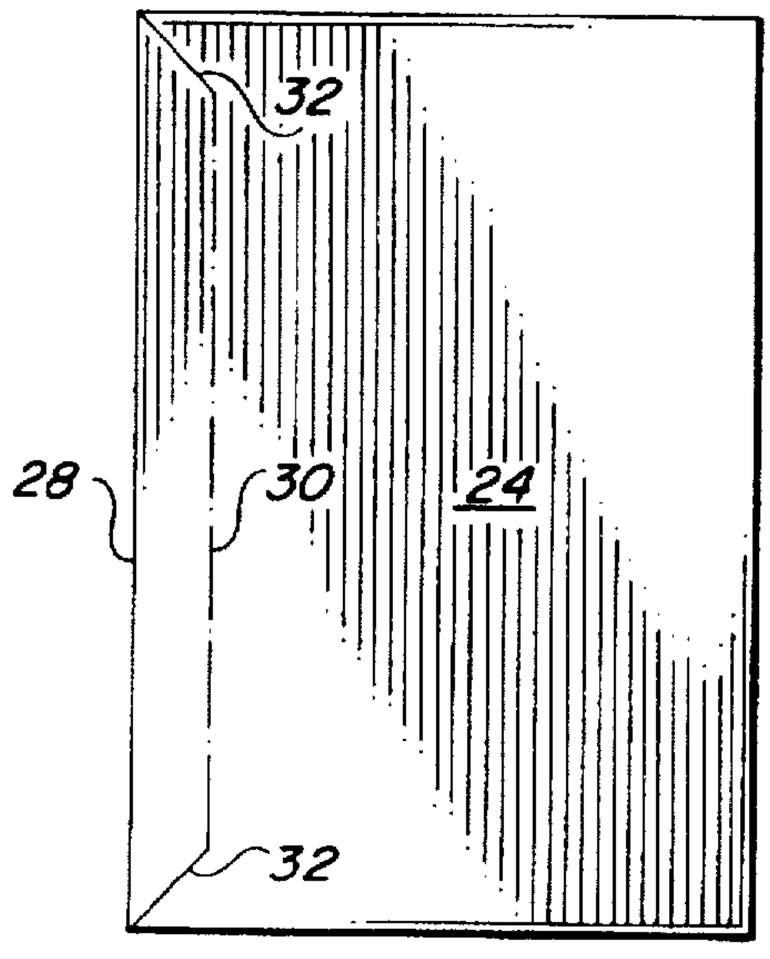


FIG-4

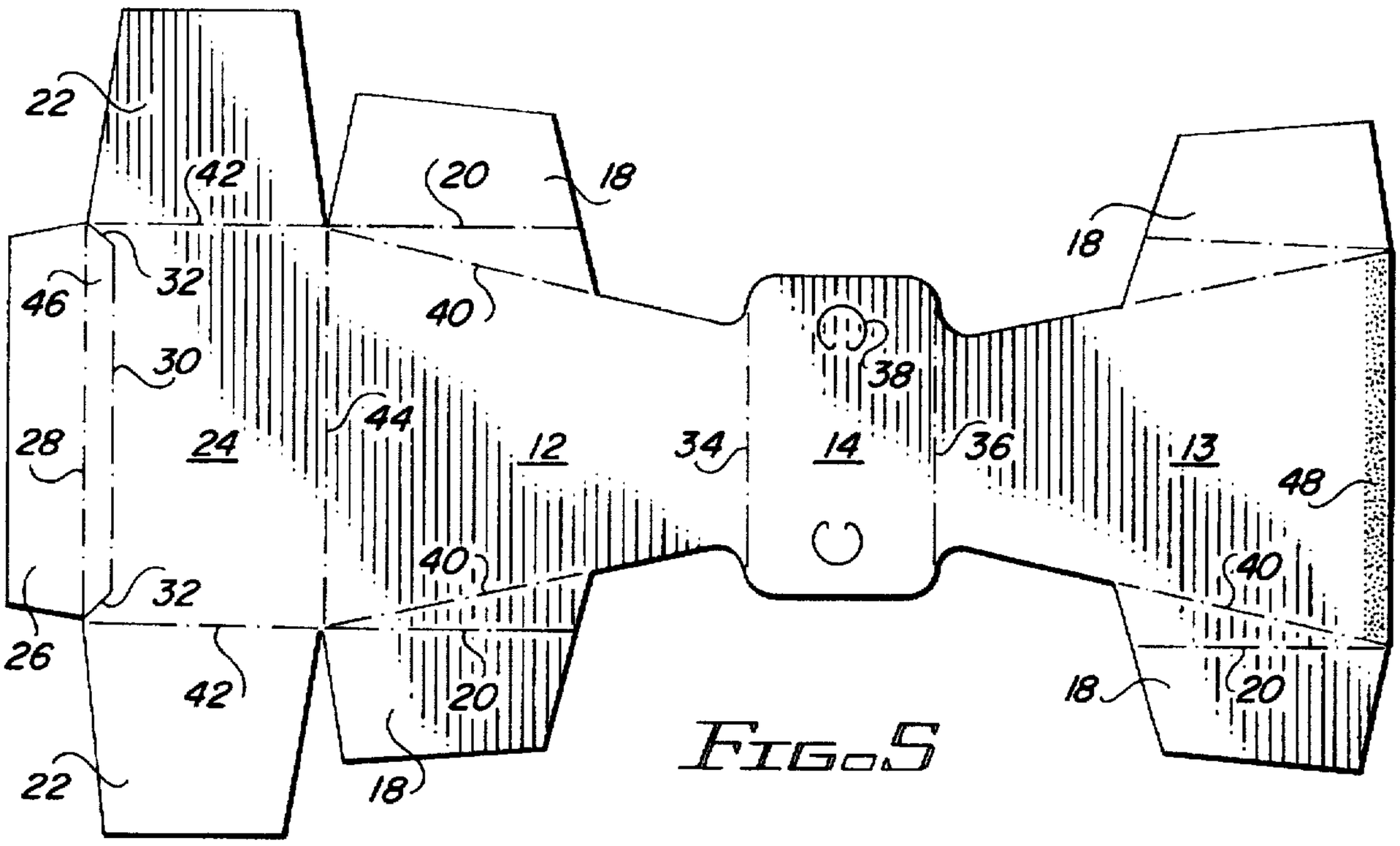

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FIG. 5

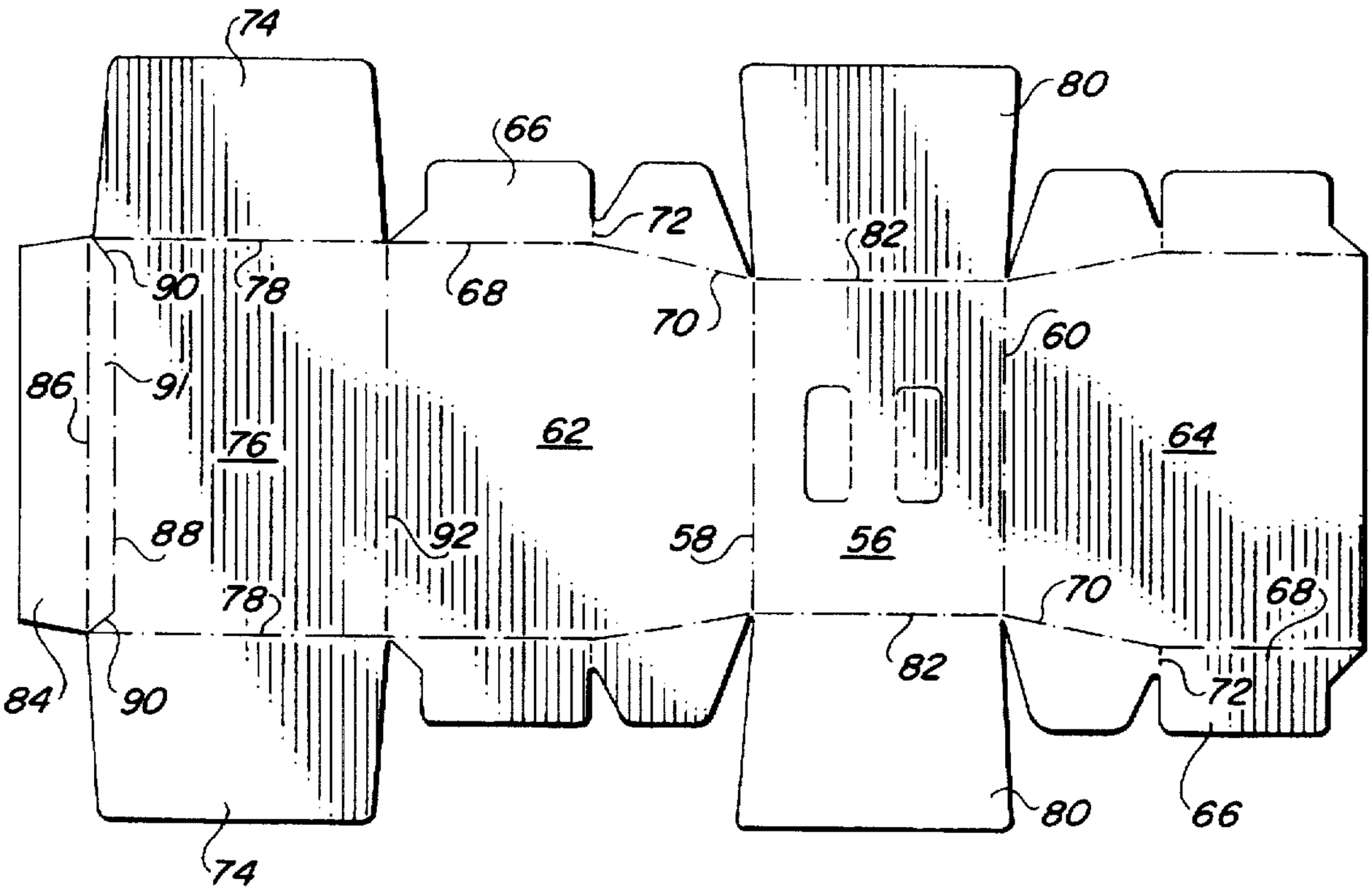
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FIG. 8

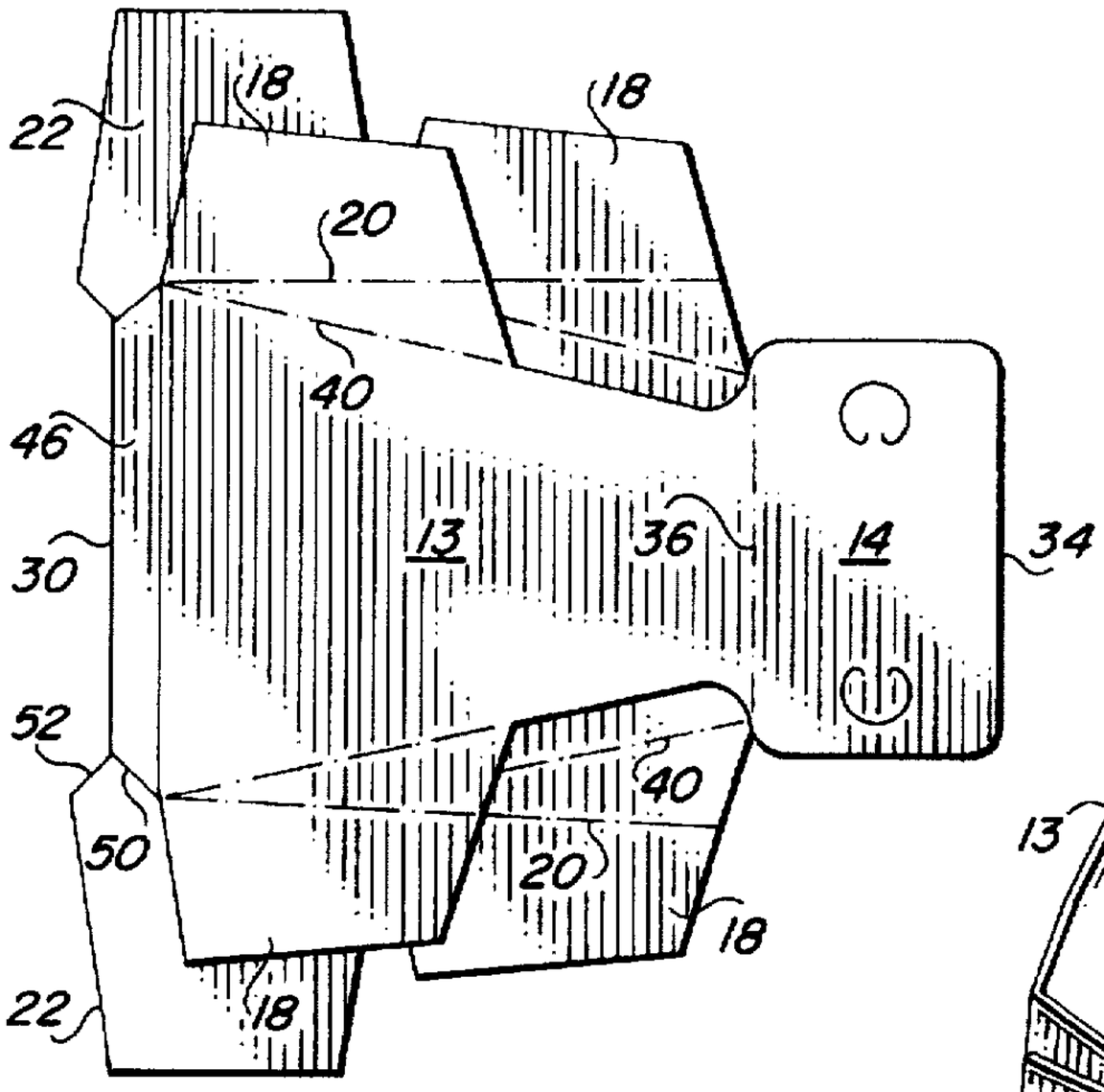

FIG-6

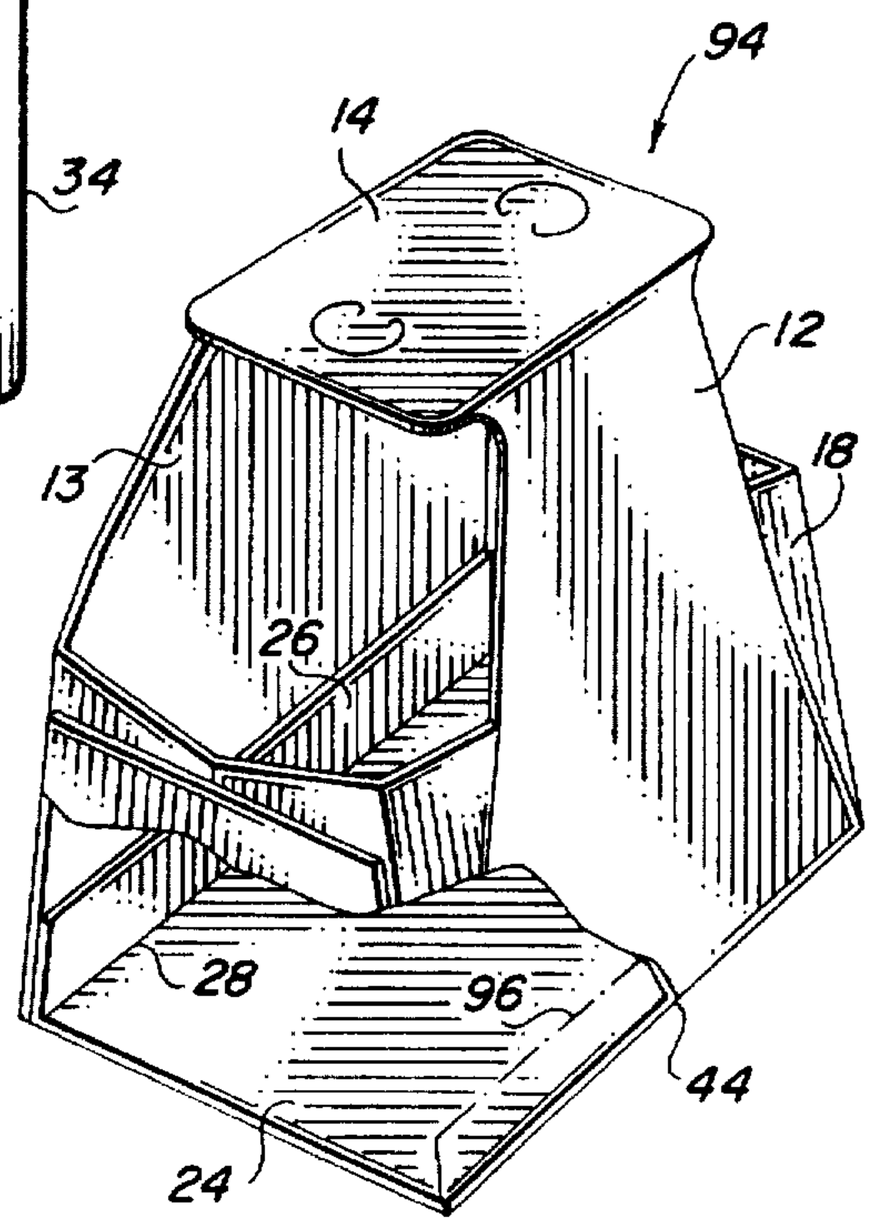

FIG-10

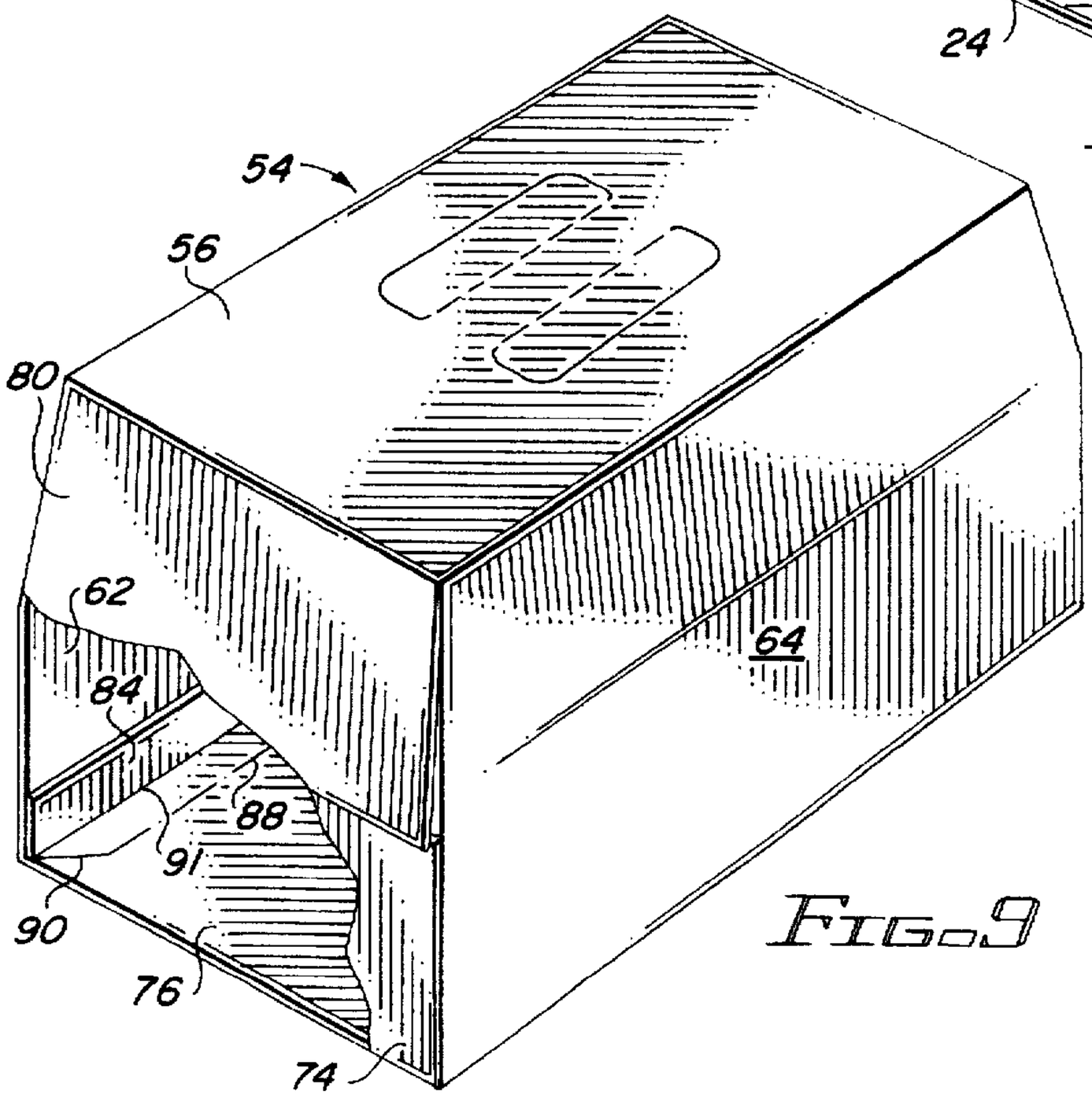

FIG-9

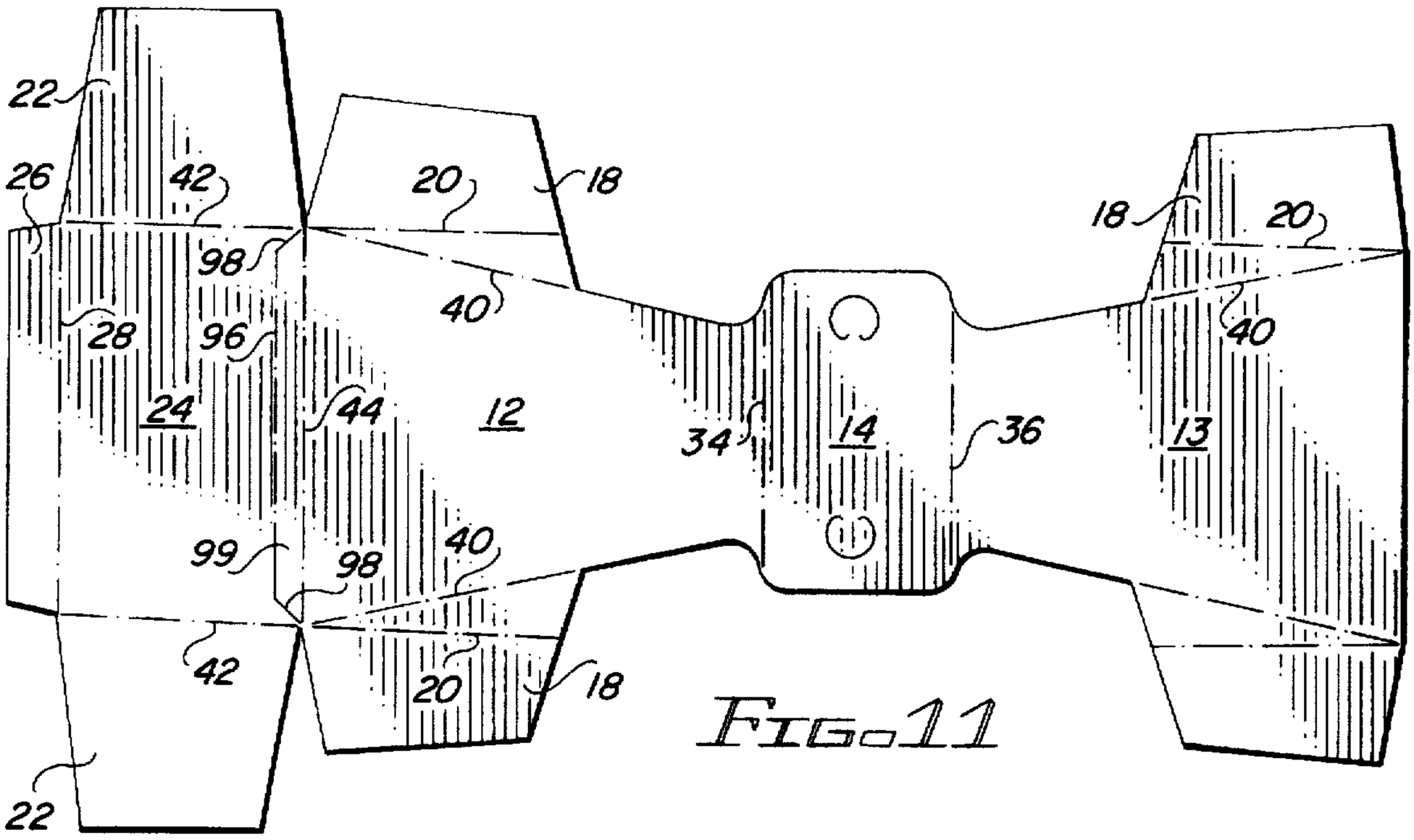

FIG-11

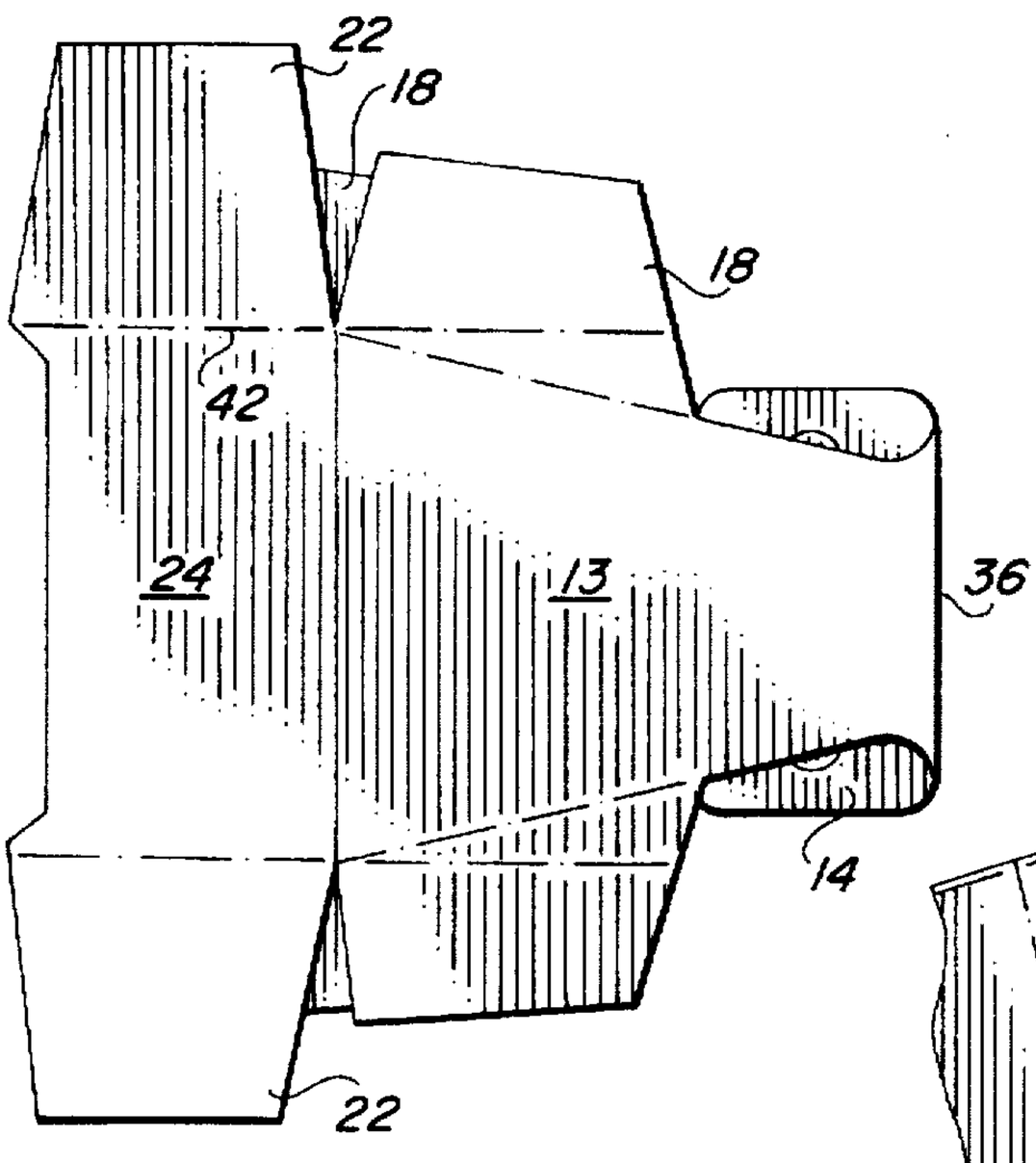

FIG-12

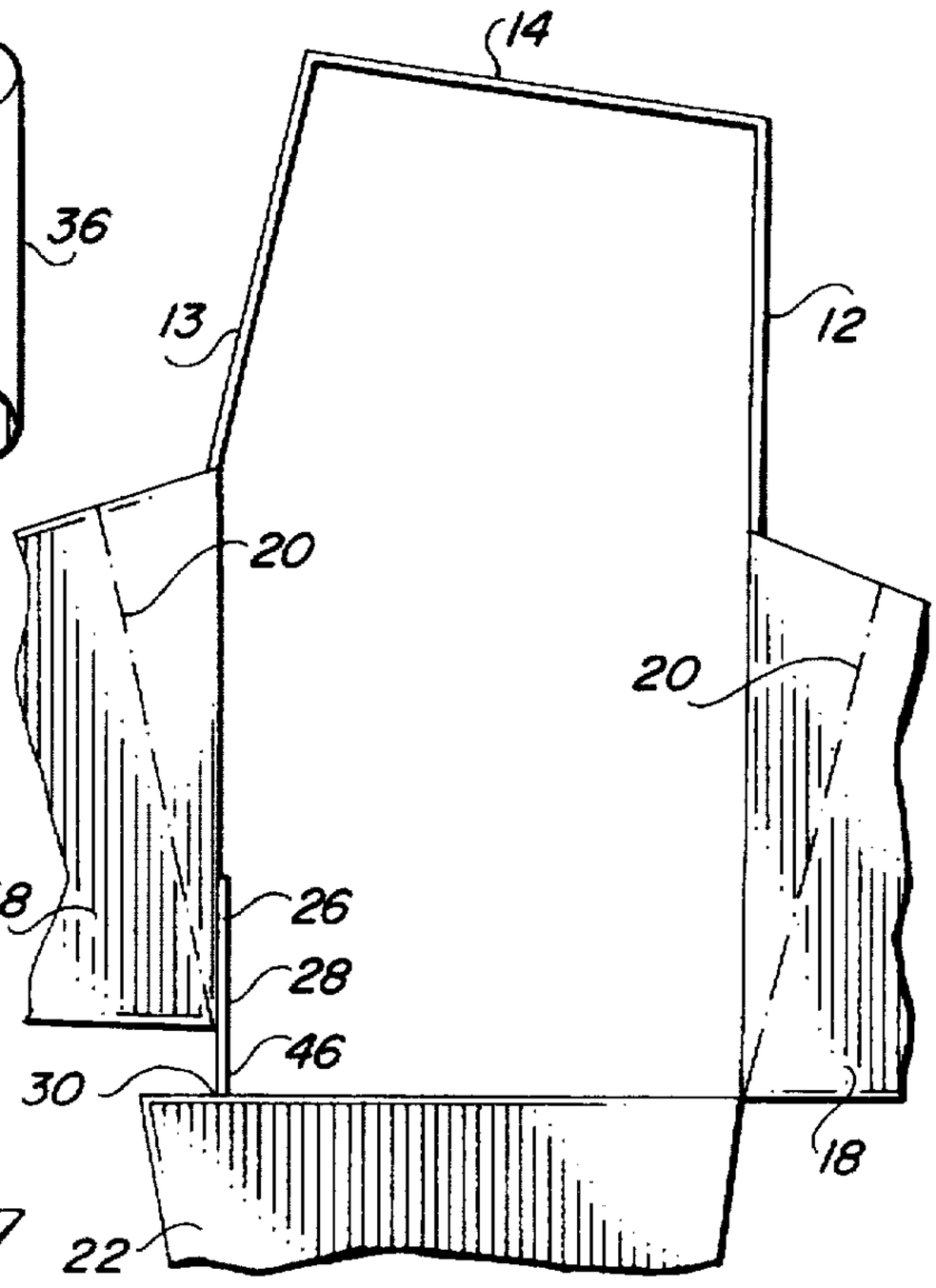

FIG-7

ARTICLE CARRIER WITH BOTTOM PANEL FALSE SCORE

FIELD OF THE INVENTION

This invention relates to a sleeve-type carrier for packaging articles such as beverage bottles. More particularly, it relates to a sleeve-type carrier having tapered sides.

BACKGROUND OF THE INVENTION

Sleeve-type carriers conventionally are manufactured from an elongated blank having a side panel section at one end and either the bottom panel section or the top panel section at the other end. The blank is formed into a flattened tube by folding the end sections in and adhering them to each other by a glue flap on one of the end sections. This flattened tube, or collapsed carrier as it is sometimes called, is then shipped to a packaging plant where it is erected into tube shape, filled with the articles being packaged and closed in at its ends. In the final form of carrier the fold line connecting the glue flap to the end section of the blank is a major fold line of the carrier, connecting one of the side panels to either the top or bottom panel.

When packaging bottles the end panels are often tapered inwardly toward the top panel to more closely conform to the shape of the bottles. To effect this design, the bottom panel is made longer than the top panel. This does not impact the manner in which the carrier is formed from the blank since the blank can still be folded in the manner described to create a collapsed carrier. This is possible because the length of the carrier corresponds to the width of the blank, so that the dimensions allowing the glue flap to meet with the opposite end section of the blank are not changed.

A different situation arises when producing a carrier incorporating tapered side panels. In such a case the width of the bottom panel is greater than the width of the top panel. Since this affects the length of the blank, if the blank were folded in the same manner as described the glue flap would not meet the opposite end section at the same location as in the previous case and the resulting tube would not be in flattened condition.

To overcome this problem the industry has employed a "false" score in the top or side panel of the carrier. The glue flap is glued to the opposite end section of the blank in the same manner as before, but instead of folding the blank about the score line which connects the glue flap to its panel section, it is folded about a score line in the top or side panel spaced from the glue flap fold line. However, when the resulting collapsed carrier is later erected at a packaging plant it tends to open at the false score rather than at the actual score. To make the carrier open at the proper score, either elements of the packaging machine or the incoming bottles themselves must push the side panels of the carrier into their final square condition. It is preferred to have the bottles carry out this function so that the packaging machine need not be made more complicated. This makes loading the bottles more difficult, however, since it is the upper less stable portions of the bottles that initially engage the side panels and push them into square condition. Moreover, by putting the false score in the top or side panels the score interrupts the panel surface in which it is located, which tends to disrupt the graphics appearing in this area of the carrier.

It would be highly desirable to provide a tapered carrier which does not require the use of a false score in the top or side panels, but which can nevertheless be loaded and squared up in a rapid, efficient manner. It is therefore an

object of the invention to provide a carrier which meets these criteria. Another object is to provide a carrier which is not visually marred by use of a false score in the top or side panels.

BRIEF SUMMARY OF THE INVENTION

The invention is incorporated in a carrier whose bottom panel is wider than the top panel. To allow the carrier to be in flat folded condition when collapsed, the bottom panel is provided with an intermediate fold line which is substantially parallel to the side edges of the bottom panel and which divides the bottom panel into a minor portion and a major portion. The collapsed carrier is folded about the intermediate fold line, with the minor portion of the bottom panel lying substantially in the plane of one of the side panels and the major portion lying substantially in the plane of the other side panel.

When the collapsed carrier is opened during the packaging process the intermediate fold line is initially operative, causing the resulting carrier sleeve to assume an out-of-square condition. The carrier sleeve is squared by the bottles pushing the side panels into proper position as the bottles are inserted into the sleeve. Slits extending from the ends of the intermediate fold line to the nearest bottom panel fold line allow the bottom panel to be folded in this manner without extending the fold line into the end panel flaps connected to the bottom panel. Because the false score is in the bottom panel, it is not visible in the final package.

These and other features and aspects of the invention will be readily ascertained from the detailed description of the preferred embodiments described below.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is a pictorial view of a partially enclosed sleeve-type carrier incorporating the invention;

FIG. **2** is an end view of the carrier of FIG. **1**;

FIG. **3** is a partial pictorial view of the carrier with the bottles and the near end panel removed in order to show the interior;

FIG. **4** is a bottom view of the carrier of FIG. **1**;

FIG. **5** is a plan view of a blank for fabricating the carrier of FIG. **1**;

FIG. **6** is a plan view of a collapsed carrier formed from the blank of FIG. **5**;

FIG. **7** is an end view of an erected open-ended carrier prior to loading it with bottles;

FIG. **8** is a plan view of a blank for forming another embodiment of the invention;

FIG. **9** is a partial pictorial view of a fully enclosed carrier formed from the blank of FIG. **8**;

FIG. **10** is a partial pictorial view of a carrier similar to the carrier of FIG. **1**, but incorporating a modified form of the invention;

FIG. **11** is a plan view of a blank for forming the carrier of FIG. **10**; and

FIG. **12** is a plan view of a collapsed carrier formed from the blank of FIG. **11**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. **1** and **2**, the carrier **10** is a sleeve-type carrier designed to carry six beverage bottles B. It is comprised of opposite side panels **12** and **13** which are

foldably connected to top panel **14** and to a bottom panel, not visible in these views. The carrier also includes partially open end panels **16** formed by dust flaps **18** which are folded in from the side panels and meet at the centerline of the carrier. An intermediate fold line **20** in the dust flaps allows the flaps to fold about the end bottles in the carrier in order to more tightly hold the bottles in place. An end panel flap **22** extends up from the bottom panel and is glued to the dust flaps to complete the end panel formation. As seen in FIG. **1**, the bottom panel is longer than the top panel, and as best shown in FIG. **2**, it is also wider than the top panel, enabling the wider body portions of the bottles to snugly fit in the lower portion of the carrier.

As shown in FIG. **3**, bottom panel **24** is connected to glue flap **26** by fold line **28** and the glue flap is adhered to the side panel **13**. The fold line **28** thus foldably connecto the side panel **13** to the bottom panel. The bottom panel also includes false score **30**, also referred to in the specification and claims as an intermediate fold line. As best shown in FIG. **4**, the false score or fold line **30** is spaced from and parallel to the fold line **28**, and is connected to the adjacent corners of the bottom panel **24** by diagonal slits **32**.

The blank from which the carrier is formed is shown in FIG. **5** to comprise top panel section **14** connected to side panel sections **12** and **13** by fold lines **34** and **36**. Finger holes **38** in the top panel section serve as handle grips. The dust flaps **18** are connected to the side panel sections by fold lines **40**, and the end panel flaps **22** are connected to the bottom panel section **24** by fold lines **42**. In addition to the bottom panel section **24** being connected to the glue flap **26** by fold line **28**, it is also connected to the side panel section **12** by fold line **44**. The fold line **30** thus divides the bottom panel section into a minor portion, bounded by the fold line **28**, the fold line **30** and the slits **32**, and a major portion comprising the remainder of the bottom panel. The location of the fold **30** is dependent upon the difference in width between the top and bottom panels, and the angle of the slits **32** is a matter of choice, as explained below.

To form a flat collapsed carrier from the blank the glue flap **26** and the adjacent minor portion **46** of the bottom panel section are folded in about the intermediate fold line **30**. Glue is then applied either to the glue flap **26** or to the stippled portion **48** at the end of side panel section **13**, as shown in FIG. **5**. The side panel section **13** and the top panel section **12** are then pivoted as a unit about the fold line **34** to bring the stippled portion **48** into contact with the glue flap, adhering these surfaces to each other. The resulting collapsed carrier is shown in FIG. **6**. The bottom panel edges **50** and **52** formed by the slits **32** in the bottom panel section of the blank are separate and diverging at this point.

The collapsed carrier is erected to form a tube or sleeve by applying inward pressure to the folds **30** and **34** at the ends of the collapsed carrier, as is well known in the industry. As illustrated in FIG. **7**, the erected carrier is not yet square because the fold line **30** is still operative, leaving the area **46** of the bottom panel in the same plane as the lower portion of the side panel **13**. However, since the combined width of the bases of the two adjacent rows of bottles inserted into the sleeve is equal to the width of the bottom panel, the bottles themselves force the bottom panel portion **46** into the same plane as the rest of the bottom panel, making the fold line **28** the operative fold line between the side panel **13** and the bottom panel **24** as shown in FIG. **3**. The edges **50** and **52** are therefore once again adjacent each other as shown in FIG. **4**.

The actual location of the intermediate fold line in the bottom panel is determined by the widths of the top and bottom panels. To form a symmetrical carrier the intermediate fold line should be located a distance from the nearest bottom panel fold line equal to half the difference between the widths of the top and bottom panels.

As to the angle of the slits **32**, it will be appreciated that they could theoretically be at right angles to the fold line **30**, which would make them coincide with the bottom panel fold lines **42**. However, this would have the undesirable effect of weakening the foldable connection between the end panel flaps **22** and the bottom panel **24**. Therefore, it is preferred to angle the slits so that they are not so close to the fold lines **42** as to cause any significant weakening. An angle of 45° has been used in the example shown.

The invention is not limited to use with a partially open-ended carrier of the type illustrated in FIGS. **1–7**, but may be incorporated in other sleeve-type carrier designs as well. The blank shown in FIG. **8**, for example, is designed to form a fully enclosed carrier for receiving twelve bottles arranged in three rows of four bottles each. The blank is similar in basic layout to conventional blanks for forming enclosed carriers, comprising top panel section **56** connected by fold lines **58** and **60** to side panel sections **62** and **64**. Each side panel section is connected to opposite dust flaps **66** by converging fold lines **68** and **70**. A score line **72** in the dust flaps at the juncture of the fold lines **68** and **70** allows the upper portion of the dust flaps to fold in about the fold line **70** against the neck of an adjacent bottle. End panel flaps **74** are connected to the bottom panel section **76** by fold lines **78** as in the first embodiment, but in this embodiment end panel flaps **80** are also provided, being connected to the top panel section **56** by fold lines **82**. As in the first embodiment a glue flap **84** is connected to the bottom panel section by fold line **86** and a false score or intermediate fold line **88** in the bottom panel section is connected to the fold lines **78** by the slits **90** to form bottom panel minor portion **91**. The bottom panel section is also connected to the side panel section **62** by fold line **92**.

The process of forming a package from the blank is the same as described in connection with the first embodiment. The resulting carrier, without the bottles showing, is illustrated in FIG. **9** as having the false score line **88** in the bottom panel. As in the carrier of the first embodiment, the initially out-of-square erected carrier is squared up by being pushed into place by the base of the bottles as they enter the carrier tube.

Another embodiment of the invention is shown in FIG. **10** to be a partially open-ended carrier **94** similar to the carrier **10** of FIG. **3**. In carrier **94**, however, the intermediate fold line **96** is spaced a short distance from the fold line **44** rather than a short distance from the fold line **28**.

The carrier **94** is formed from the blank shown in FIG. **11**, wherein like reference numerals to those used in FIG. **5** denote similar elements. It can be seen that the intermediate fold line or false score line **96** is connected to the ends of fold line **44** by the diagonal slits **98** to form minor bottom panel portion **99**. To form a collapsed carrier the bottom panel section **24** is folded about the fold line **96**. Glue is applied to the glue flap **26** or to the end portion of the side panel section **13**, after which the side panel section **13** is folded in about the fold line **36**. This places the end portion of the side panel section **13** in contact with the glue flap **26**, adhering them together. The resulting collapsed carrier is shown in FIG. **12**. It will be appreciated that the collapsed carrier is similar in appearance to the reverse side of the collapsed carrier of FIG. **6**. This embodiment, therefore, results in the same type of carrier as the carrier of FIG. **1**, but

requires a different folding procedure to be employed to form a flat collapsed carrier. The unfolding of the intermediate fold line **96** takes place in the same manner as in the previous embodiments, by the bases of the incoming bottles forcing the lower portions of the side panels into a square relationship with the bottom panel. As in the other embodiments, in order to produce a **10** symmetrical carrier the intermediate fold line is spaced a distance from the nearest bottom panel fold line equal to half the difference in widths between the top and bottom panels.

Although the carrier has been described in connection with a sleeve-type carrier for packaging bottles, it will be understood that it may be used to package other types of tapered articles as well. The ability to use the base of the articles to force the erected carrier into square condition makes for a more stable process and makes it easier to introduce articles into the carrier. Also, the location of the false score in the bottom panel has no visual impact, thereby not interfering with any graphics printed on the side or top panels.

It will be understood that the invention is not limited to all the specific details described in connection with the preferred embodiments, except as they may be within the scope of the appended claims, and that changes to certain features of the preferred embodiments which do not alter the overall basic function and concept of the invention are contemplated.

What is claimed is:

1. An article carrier of the type formed from a collapsed carrier sleeve, comprising:

opposite side panels connected to opposite side edges of a top panel and to opposite side edges of a substantially planar bottom panel, the side edges of the top and bottom panels being substantially parallel;

opposite end panels connected to the side panels and the bottom panel;

the bottom panel having a greater width than the width of the top panel; and

the bottom panel including an intermediate fold line substantially parallel to the side edges of the bottom panel, the intermediate fold line being spaced from one of the side edges of the bottom panel by an amount substantially equal to half the difference between the width of the bottom panel and the width of the top panel, whereby the bottom panel and the side panels connected to said one side edge of the bottom panel can be folded about said intermediate fold line in a collapsed carrier sleeve from which the carrier is erected so as to be in substantially face-to-face contact in such a collapsed carrier sleeve.

2. An article carrier as defined in claim **1**, wherein the bottom panel is connected to one of the side panels by a glue flap.

3. An article carrier as defined in claim **1**, wherein each end panel is comprised of inwardly folded dust flaps connected to the opposite side panels and an upwardly folded end panel flap connected to the bottom panel, the end panel flap being adhered to the dust flaps.

4. An article carrier as defined in claim **3**, wherein each end panel further includes a downwardly folded end panel flap connected to the top panel, the downwardly folded end panel flap being adhered to the upwardly folded end panel flap.

5. An article carrier as defined in claim **1**, wherein the bottom panel has a length greater than the length of the top panel.

6. An article carrier as defined in claim **1**, wherein the intermediate fold line has opposite ends, the bottom panel including a slit extending from each end of the intermediate fold line to said one side edge of the bottom panel.

7. An article carrier as defined in claim **6**, wherein the slits extend diagonally to said one side edge of the bottom panel.

8. A blank for forming an article carrier having a substantially planar bottom panel, the article carrier being of the type formed from a collapsed carrier sleeve, comprising:

a top panel section having opposite side edges;

a side panel section connected to each side edge of the top panel section by a fold line;

a bottom panel section having opposite side edges, one of the side edges being connected to one of the side panel sections by a fold line;

the bottom panel section having a greater width than the width of the top panel section;

the aforesaid side edges and the aforesaid fold lines being substantially parallel to each other; and

the bottom panel section including an intermediate fold line substantially parallel to the side edges of the bottom panel section, the intermediate fold line being spaced from one of the side edges of the bottom panel section by an amount substantially equal to half the difference between the width of the bottom panel section and the width of the top panel section, whereby the bottom panel section and the side panel section connected to said one side edge of the bottom panel section can be folded about said intermediate fold line in a collapsed carrier sleeve formed from the blank so as to be in substantially face-to-face contact therein.

9. A blank as defined in claim **8**, wherein the bottom panel section and each side panel section have opposite end edges, each end edge of the side panel sections being connected by a fold line to a dust flap, each end edge of the bottom panel section being connected by a fold line to an end panel flap.

10. A blank as defined in claim **9**, wherein the top panel section has opposite end edges, each end edge of the top panel section being connected by a fold line to an end panel flap.

11. A blank as defined in claim **8**, wherein the intermediate fold line has opposite ends, the bottom panel section including a slit extending from each end of the intermediate fold line to said one side edge of the bottom panel section.

12. A blank as defined in claim **11**, wherein the slits extend diagonally to said one side edge of the bottom panel section.

* * * * *